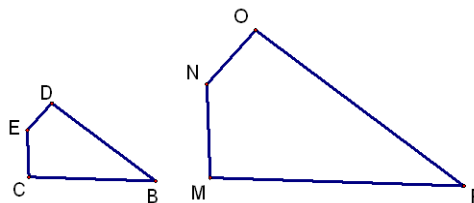


7-2 Similar Polygons

Two polygons are \sim , if

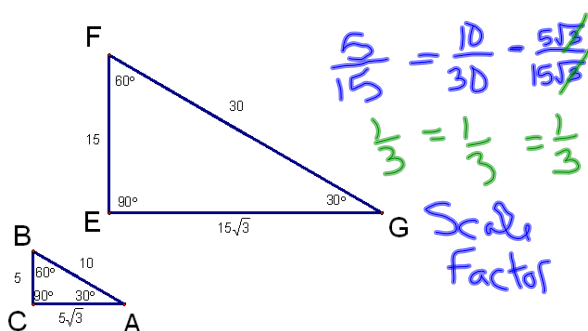
1. corresponding \angle s are \cong
2. corresponding sides are proportional

The two figures are similar.



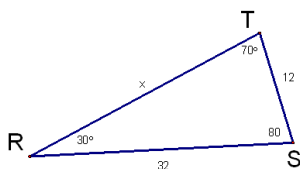
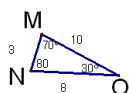
Write a similarity statement.

poly $\text{DEC B} \sim \text{poly ONMP}$



Scale factor—ratio of the corresponding sides

The two triangles are similar.



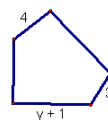
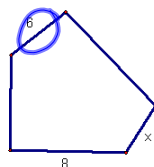
$\triangle MNO \sim \triangle TSR$

What is
Scale factor?

$$\frac{8}{32} = \frac{1}{4} \text{ Scale factor}$$

$$\frac{1}{4} \times \frac{16}{x} \quad (x=40)$$

The pentagons are similar.
Solve for x and y.



$$Sf = \frac{6}{4} = \frac{3}{2}$$

$$\frac{3}{2} = \frac{x}{3}$$

$$2x = 9$$

$$x = 4.5$$

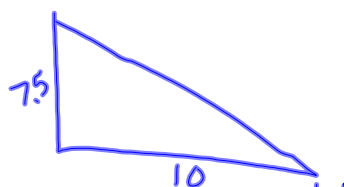
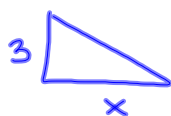
$$\frac{3}{2} = \frac{8}{y+1}$$

$$16 = 3(y+1)$$

$$16 = 3y + 3$$

$$13 = 3y$$

$$y = \frac{13}{3} = 4\frac{1}{3}$$



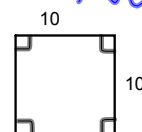
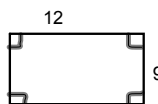
$$\frac{3}{7.5} = \frac{x}{10}$$

$$7.5x = 30$$

$$x = 4$$

Are the following figures similar?

No

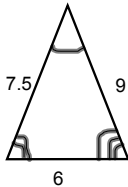
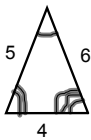


$\angle s \cong ?$ yes
Side prop? No

$$\frac{12}{10} \neq \frac{9}{10} \text{ No}$$

Are the following figures similar?

yes

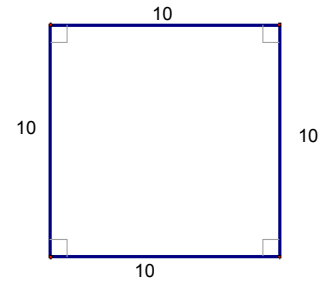
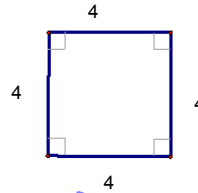


$\angle s \cong ?$ yes
 Sides prop? yes

$$\frac{5}{7.5} = \frac{6}{9} = \frac{4}{6}$$

$$\sqrt{.6} = .6 = .6$$

Are the following figures similar?



$\angle s \cong ?$ yes
 Sides prop? yes $\frac{4}{10} = \frac{4}{10} = \frac{4}{10} = \frac{4}{10}$

Theorem 7.1--Perimeters of Similar Polygons

If 2 polygons are similar, then the ratio of their perimeters is equal to the ratio of their corresponding side lengths.

ex:

 $\triangle ABC \sim \triangle DEF$

The scale factor is 4:5.

The perimeter of $\triangle ABC$ is 12cm.What is the perimeter of $\triangle DEF$?

$$\frac{4}{5} = \frac{12}{p}$$

$$4p = 60$$

$$p = 15 \text{ cm}$$

HW

p368-370

3-8, 10-14, 17-20